

Between Science and Fiction: Notes on the Demography of the Holocaust

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The quantitative effects of the Holocaust have been the subject of much discussion and speculation, but rarely have they been seriously scrutinized using demographic methods. The first part of this article outlines the major factors that need to be fully examined in order to assess the short and long-term effects of the Shoah on the Jewish population. The second section cautiously offers demographic projections for the Jewish population had the Shoah never happened. The obviously speculative analysis presented here is open to many assumptions beyond those suggested by the author in this paper. The results of alternative projections reveal that because of the generations that were not born, high wartime child mortality, and the present day aging of the Jewish population, demographic losses continue to extend far beyond that of six million.

The scholarly study of the Holocaust during World War II (better rendered by the Hebrew term *Shoah*) requires a multi-disciplinary approach. While much of the initial burden of documentation and interpretation has been done by historians, in recent years additional disciplinary perspectives have enriched our understanding of the facts and of their meaning. Psychology, sociology, literature, history of the arts, and comparative religion have all contributed sensitive ways of filtering, organizing, and interpreting the huge—if selective—mass of raw materials that have been preserved and transmitted on the relevant subject matter.

The input expected of demography in the ever-growing effort to reconstruct and understand is usually reduced to the emblematic question: “How many victims?” In this respect, the immense task to document the exact number of victims, and their respective identities, is still under way fifty years after the end of World War II.¹ Overall, we do know most of the quantitative answers, yet not with absolute precision. It is generally estimated that the world’s Jewish population was approximately 16.5 million in 1939 and was reduced to eleven million by 1945. Table 1 provides a broad outline of some of the major changes in world Jewish population distribution from 1939 to the present. The data portray the radical rearrangement in the ranking of

Table 1.
Fifteen Countries with Largest Jewish Populations, 1939, 1970 and 1993

1993		1970		1939	
Country	Jewish population	Country	Jewish population	Country	Jewish population
1 USA	5,650,000	USA	5,400,000	USA	4,870,000
2 Israel	4,335,200	Israel	2,582,000	Poland	3,225,000
3 France	530,000	Russia	807,900	Ukraine	1,583,000
4 Russia	410,000	Ukraine	777,100	Russia	903,000
5 Canada	358,000	France	530,000	Romania	520,000
6 UK	296,000	UK	390,000	Palestine	445,000
7 Ukraine	245,000	Canada	286,000	Hungary	404,000
8 Argentina	210,000	Argentina	282,000	Belorussia	375,000
9 Brazil	100,000	Belorussia	148,000	Czechoslovakia	357,000
10 South Africa	98,000	South Africa	118,000	UK	345,000
11 Australia	91,000	Uzbekistan	102,900	France	320,000
12 Hungary	55,000	Moldavia	98,100	Bessarabia	280,000
13 Germany	52,000	Brazil	90,000	Argentina	254,000
14 Belarus	40,700	Iran	72,000	Lithuania	240,000
15 Mexico	40,700	Hungary	70,000	Germany	195,000
Percent of World Jewish Population					
Total 1–2	77.0		63.1		49.1
Total 1–5	87.1		79.9		67.3
Total 1–10	94.4		89.5		78.9
Total 1–15	96.5		93.0		86.8

Note. Country boundaries as in 1993

Source: Sergio DellaPergola, *The Jewish People Toward the Year 2020: Sociodemographic Scenarios*. Paper submitted to the Israel 2020 Project (Haifa: The Technion, forthcoming) (Hebrew).

major Jewish population centers worldwide, as well as the continuing process of concentration of higher proportions of Jews in a declining number of countries.

A number of studies have attempted to provide systematic answers to the question of the demographic impact of the Shoah within limited national or regional contexts.² In a broader geographical perspective, a combination of deductive and inductive methods have been employed to draw up a definitive balance sheet of the catastrophe.³ Recently, important new light has also been shed on the quantitative significance of the Shoah in a comparative historical context.⁴ However, with few exceptions,⁵ the more or less tentative answers to the central question are generally accompanied by little or no further elaboration from a demographic standpoint.

A systematic sociodemographic perspective should at least suggest a preliminary inventory of issues to be researched in greater depth. These are manifold and complex, far beyond the central issue of the number of victims, but can be addressed using the growing body of raw data and analyses that have accumulated in recent years. Quantitative tools, such as demographic models and population projections, can help us deal with the most elusive and intractable of all questions—yet one routinely raised: What would the demography and size of the Jewish people be now if there had not been a Shoah?

This paper is divided into two parts. In the first section, we present a schematic outline of some of the major issues that ought to be investigated with sociodemographic tools in order to fully assess the implications of the Shoah vis-à-vis Jewish population in the short and long-term. The second part explores possible demographic scenarios for the Jewish population under hypothetical conditions of normalcy—without the Shoah. The character of the latter analysis is obviously speculative and open to many alternative hypotheses beyond even those suggested below.

A statistical quantification of the Shoah cannot substitute for the study of sensitive moral issues at the individual and collective human level. We are fully aware that the kind of speculation presented here may easily draw straightforward criticism as an example of futile pondering over an imaginary history. Nevertheless, the main reason for dwelling on such questions is a feeling that a tough educational struggle still lies ahead if we want a large and mature public to become fully aware of the facts and implications of the Shoah in particular, and of genocide in general. Such educational efforts should utilize any possible approach and technique, whether textual or audio-visual, scholarly rigorous, or creatively artistic. Different people are likely to be impressed by different messages. This demographic analysis is one example of still another approach that may impress some people about the implications of genocide. Such an effort is worthwhile in any event, but it takes on added importance in light of Holocaust denial.

What Happened

From a demographer's point of view, the consequences of the Shoah extend in various directions. Some of the effects can be considered irreversible; others are temporary and will gradually disappear with the passing of the generations that directly suffered, witnessed, and survived persecution. The Jewish case of the late 1930s and early 1940s pertains to the broader definition and implications of the demography of slaughter, or in broader terms—the demography of catastrophe. The specific circumstances, however, tend to involve a more complex array of factors and ramifications than in the case of other types of crisis that have been studied, such as large-scale epidemics or natural disasters.⁶

A brief synthesis of some of the major relevant aspects of the Shoah should include the following factors:

1. Jewish population size. The number of Jews dramatically diminished worldwide, throughout the European continent, and in each individual country, province and locality affected by Nazi anti-Jewish policy. Numerical reduction ranged between total and very selective. None of the serious research studies on the overall number of Jewish victims apparently falls below 4.5 million, and a few moderately exceed six million. At this stage it would appear that the definitive figure may fall in the range between 5.6 and 5.9 million victims. Part of the problem of assessing the number of victims is related to the question "Who is a Jew?" It is well known that Nazi anti-Jewish policies were based on a racial concept of Jewish identity rather than on indi-

vidual self-identification. Non-Jews who had Jewish ancestors were persecuted and therefore included in some of the victim counts. Still, an effort may be made to extend the tragic results of the Shoah to those who identified themselves as Jews before and after World War II.

2. Weight of Jewish presence. One obvious corollary of the diminished Jewish population is a reduced proportion of Jews—hence societal weight—out of the total population in each country and globally. Jewish population reduction occurred during a time when the general world population was entering a stage of intensive growth. In 1939 Jews represented about 7.5 per one thousand of the world population, whereas their current rate is 2.3 per one thousand inhabitants of the world.⁷ Even though in absolute terms the size of the Jewish population was reduced by more than one-third because of the Shoah, the Jews' relative weight in the world's total population was eventually reduced by nearly seventy percent.

3. Geographical distribution. The global geographical-regional balance of world Jewry was irreversibly modified by the varying incidence of direct destruction in different areas. To some extent, although less durably, the same applies to the internal geography of each affected country. Since geography is clearly associated with cultural differentials within the Jewish population, selective destruction greatly affected the preservation and transmission of Jewish culture. The destruction of the main Jewish centers in Eastern Europe caused the center of gravity of Jewish life to be transferred by default to the Western countries.

4. International migration. Migrations induced by the unnatural circumstances of the World War II period and its aftermath contributed to extreme geographical changes of global and regional import. The experiences of geographical mobility, displacement, de-rooting and re-rooting (where feasible) were shared by the overwhelming majority of Jews who had lived in the areas affected by the Shoah.

5. Health conditions and mortality. In addition to the immediate effects of physical extermination, the physical and mental suffering incurred by survivors caused a general serious worsening of their standard of health, and increased morbidity and mortality. Some of these effects were irreversibly endured by the survivors long after the end of the war, and some in all likelihood were transmitted to the "second generation."

6. Marital status. Diminished chances for marriage during the years of persecution determined a marked increase in permanent celibacy among a Jewish population which traditionally had a high rate of marriage. Moreover, the increased mortality led to larger numbers of the widowed, orphans, and other forms of family breakdown among survivors.

7. Outmarriage. Cases of mixed marriage during the Shoah period may have been associated with a comparatively higher rate of survival among the Jewish spouses in such households. However, the impact of the war and anti-Jewish persecution may have helped to boost Jewish propensities toward intermarriage in the aftermath.

8. Fertility. Rare marriage as well as fears about bringing children into the

world, combined with the difficulty of having children under the prevailing conditions of oppression and flight, contributed to extremely low Jewish birth rates. Consequently, several consecutive very scant or *hollow* cohorts were born among Jews, especially in Europe, between the late 1930s and mid-1940s.

9. Gender composition. We would argue that victimization was proportionally higher for Jewish males than for Jewish females. These gender imbalances in the surviving Jewish population may have affected the above-named issues as well.

10. Age composition. Victimization affected the Jewish age composition in unequal ways. Probably the most significant pattern was the total destruction of a Jewish population regardless of its age structure. This happened more frequently in regions of Eastern Europe where the Jewish population was comparatively young. In areas with fewer victims, different effects may have occurred. For example, as may have been the case in parts of France, it was possible to hide at least some Jewish children, thus the loss to the younger segment of Jewish population was proportionally somewhat smaller than among young adults and the elderly.⁸ However, in parts of Italy deported Jewish families insisted on traveling with their young children, and the consequences were comparatively more serious for the younger segment of the age structure.⁹ Other things being equal, general survival may have been somewhat greater among physically fit young adults than among children, especially infants, and the elderly. In addition to these structural effects, the previously noted lowering of fertility also contributed to a sharp aging of the surviving Jewish population.

11. Educational attainment and occupation. During the period of persecution, opportunities were lost in the fields of education, employment, and social mobility. Even if these lost chances were sometimes legally compensated by governments or other authorities after World War II, many Jews suffered irreparable losses of social status and potential economic reward.

12. Conversions. In countries where the option of conversion out of Judaism was available, the Jewish population lost additional members. Such losses in many cases became irreversible, either because conversion had been the free choice of the concerned individuals; or, as in the case of Jewish children placed in non-Jewish religious institutions, when there was sometimes a refusal after the war to release them to their natural parents, or to return them to their Jewish identity. Sometimes conversion to another religion saved the lives of Jews who undertook this change of identification. However, this was not a sufficient defense against the racial definition of Jews that served as the Nazi rationale for persecution. The frequency of conversions may have been highly selective according to several personal characteristics, such as gender, age, and socioeconomic status.

13. Jewish identification and cultural patterns. One of the most significant consequences of the Shoah relates its differential geographical impact to the intensity of Jewish identification among existing Jewish communities. Available evidence points to massive destruction of Jewish communities and social strata that were compara-

tively more strongly identified with Judaism, in terms of religious observance and of adherence to traditional Jewish cultural patterns. The Shoah, by its selective impact on victims, directly weakened the degree of Jewish identification of survivors. Another complex cultural effect relates to the ideational perceptions of survivors, and their willingness to continue to identify with Jewish religion, peoplehood, culture, or history after the Shoah. The so far very fragmentary evidence in this respect is conflicting, as it points to instances of both intensification and diminution of Jewishness among survivors.¹⁰ It may however be hypothesized that the Shoah produced among many a loss of faith and therefore an overall weakening of Jewish identification.

It seems clear that at least thirteen distinct variables, or processes, rather than one, underlie the sociodemography of the Shoah. Many of these features should be seen as long-term effects on Jewish population and community dynamics. These effects build on the sociodemographic bases that prevailed before the war in the different regions more or less affected by Shoah, and extend to our days and beyond.

The cyclical nature of the relationship among natality, mortality, and a population's age structure should be particularly stressed here. Fewer births and an older population at one date imply a higher death rate and a smaller population at a later date. The character and consequences of mutual relationships among other variables and processes mentioned above may be even more complex, especially when cultural and ideological dimensions of the social and demographic dynamics are involved. But overall, it seems safe and accurate to say at this initial stage that significant, lingering aftereffects of the Shoah continue to be an integral part of the overall demographic picture of world Jewry.

What Could Have Happened

Background

The worldwide Jewish population grew extraordinarily rapidly during the nineteenth century, from approximately 2.5 million in 1800 to 4.7 million in 1850, and 10.6 million in 1900. The near doubling during the first half of that century, and even larger increase during the second half, was unique compared to trends in other contemporaneous societies. Jewish growth rates of more than two percent annually were not uncommon in Eastern Europe during the last quarter of the nineteenth century, and surpassed those of the fastest-growing general populations at that time (1.5–1.7 percent growth annually for England, Poland, and Russia between the 1880s and 1910). The rapid population growth among Jews—in Central and especially Eastern Europe—denoted an early decline in mortality levels combined with persistently traditional family patterns and relatively high fertility levels.¹¹ In this context it is worth noting that early observation of the different birth-rates and death-rates of Jews and non-Jews was one of the factors that helped promote theories about alleged Jewish racial characteristics that later led to antisemitic persecution.¹²

However, quite different trends characterized other regional segments of the global Jewish population. Most of the growth came from the communities in Eastern Europe that, in the process, had the largest concentration of world Jewry. During the period of peak Jewish population growth, between the 1860s and World War I, Jewish communities in North Africa and the Near East were still demographically rather static or grew very slowly, due to the underdeveloped context of the respective regions. Those Jewish communities came to develop faster at a later period.

During the first decades of the twentieth century, the growing modernization and acculturation of Jewish societies were directly or indirectly associated with a slower rhythm of population growth, through declining nuptiality and fertility, and the initial spread of intermarriage. However, a fundamental mechanism in population change, already mentioned above, involved the relationship between a population's age composition and its birth-rate, and consequently its rate of growth. The combination of high fertility and low mortality throughout the late nineteenth century had produced a young Jewish age structure. For example, in 1897 approximately forty-one percent of the total Jewish population in the Russian Empire (roughly one half of the total world Jewry at the time), were children below the age of fifteen.¹³ Large birth cohorts, eventually becoming a large young adult population apt to procreate, were producing a substantial demographic increase even at a time of fertility reduction. Between 1900 and 1939, the world Jewish population is thus estimated to have grown by close to another six million, from 10.6 to 16.5 million.

During the inter-war period, age composition of the Jewish population, although comprising a growing share of older adults and elderly, was still relatively young. During the 1920s the proportion of children below the age of fifteen ranged between thirty-four percent of all Jews in Poland, and eighteen percent in Prussia, pointing in the latter case to a trend toward demographic decline. The proportion of children remained substantially higher among Jewish communities in North Africa and the Middle East.

Tentative global estimates of the age composition of world Jewry on the eve of World War II can be computed by weighting several age compositions that are available for national and regional Jewish populations for the late 1930s. The results, reported in the upper line of Table 2, point to a regular pyramidal age structure, comprising about thirty percent children below 15; twenty-nine percent young adults aged 15–29; twenty percent in the age-group 30–44; sixteen percent aged 45–64; and about five percent of elderly people above 65.

These structural demographic data reflect the notion that on the eve of World War II, the Jewish population in the world, including extended portions of Europe, was still growing through a positive balance of births and deaths. These facts outline a first baseline out of which various hypothetical projections of Jewish population development since 1939 can be attempted.

Table 2.
World Jewish Population-Age Composition Among Selected Jewish Populations,
1939–1994, and Projections, 1990–2020 (Percentages)

Country	Year	0–14	15–29	30–44	45–64	65+	Total
Base Jewish Population							
World	1939	29.8	28.7	19.6	16.4	5.4	100.0
Actual Jewish Populations ^a							
Ethiopia	1991	50.7	19.8	13.2	11.5	4.8	100.0
Iran	1976	29.6	28.5	19.5	16.6	5.8	100.0
Mexico	1991	24.4	26.8	19.9	21.6	7.4	100.0
Canada	1991	21.0	18.8	23.8	19.1	17.3	100.0
Switzerland	1990	20.2	16.2	21.0	20.6	22.0	100.0
Brazil	1980	19.8	23.5	19.1	23.3	14.3	100.0
Australia	1986	19.2	18.1	23.6	20.2	18.9	100.0
USA	1990	18.9	18.8	25.5	19.4	17.4	100.0
South Africa	1991	18.6	22.5	22.0	21.0	15.8	100.0
Argentina ^b	1988	17.5	18.4	18.0	24.9	21.2	100.0
France ^b	1990	17.2	18.6	26.0	23.0	15.2	100.0
UK	1986	16.9	18.9	18.7	21.6	23.9	100.0
Italy	1986	14.0	23.3	18.2	25.8	18.7	100.0
Germany	1994	13.1	15.6	22.2	25.6	23.5	100.0
USSR	1989	11.6	13.0	20.2	31.6	23.6	100.0
Romania	1979	5.0	10.7	10.0	34.2	40.1	100.0
Diaspora ^b							
	1993	16.9	17.7	23.6	22.3	19.5	100.0
Israel	1993	27.7	23.9	20.7	16.8	10.9	100.0
World ^b	1993	20.5	19.8	22.6	20.5	16.6	100.0
World Jewish Population Projections Without the Shoah ^c							
Projection A	1990	24.0	23.5	21.7	18.5	12.3	100.0
	2020	17.0	18.1	20.9	26.8	17.2	100.0
Projection B	1990	20.6	20.6	21.9	22.1	14.8	100.0
	2020	13.6	17.2	20.4	26.5	22.3	100.0

^a Ordered by declining percentages in the 0–14 group. Compiled from DellaPergola, *Jewish People*.

^b Indirect estimates.

^c See also Table 3.

Assumptions: General Dilemmas

The question of projecting what might have been the demographic evolution of the Jewish population *had there not been a Shoah* has hardly been examined in the scholarly community. It is a difficult and delicate issue, charged with emotion, yet inherently relevant to anyone concerned with the historical and social-scientific research of the Shoah.

The most obvious reason for the lack of speculative work on the subject is that history cannot be rewritten and any attempts to explore the question “what if?” tend to resemble literary fiction rather than sound scholarly analysis. But even after one convincingly defends the use of such type of speculation—and, as we have already

noted, there may be some moral and analytical justification for it—one major problem is practically insoluble. Clearly, the non-occurrence of one complex event in history cannot be postulated without assuming the possibility of other crucial events interrelated with the one being examined. In the process, many different hypothetical scenarios may arise, and therefore assessing their implications may become infeasible.

In the specific case of a hypothetical non-occurrence of the Shoah, several questions readily come to mind. In a world *without* the Shoah: Would or would not antisemitism have played an important role in Europe and in the world? And what kind of impact would antisemitism have had on the Jewish population? Would World War II have occurred? And what kind of political, socioeconomic and cultural developments would the world at large, and Europe in particular, have experienced in the early 1940s and beyond? Would the State of Israel have been founded in 1948—before, after, if ever?

Each of the alternative possible scenarios suggested by these queries would generate far-reaching chain reactions for the full array of societal variables that stand behind the changing size and structure of Jewish population. Family processes, geographical and socioeconomic mobility, as well as identificational transformations, might have evolved in ways quite different from what we know to have been the actual course of events.

For example, in the absence of the Shoah, the destiny of European Jewish communities obviously would have taken quite a different course throughout the 1930s and 1940s. But would it have been in the context of a Nazi-dominated, non-belligerent status-quo, with largely non-migrant, yet economically and culturally oppressed Jewish communities? Or, as part of democratically-ruled societies, free of antisemitic menaces, and possibly attractive for some Jewish immigration?

The case can be made that without the Shoah and the refugee problems that ensued, the chances for the establishment of an independent State of Israel would have been uncertain or nonexistent. Furthermore, without World War II, would Great Britain have felt the need to liquidate its colonial empire, and with what consequences for the political situation in Palestine?

One further scenario ties together the economic stimulus produced in the context of World War II in the Depression-stricken economy of the United States, and the sharp and quite prolonged “baby boom” fertility increase that began at the end of the war. Would these changes of momentous import for the total and Jewish population of the United States have occurred without the war?

Although we cannot discuss here the merits of such speculations, it is certain that the creation of the State of Israel in 1948 had a tremendous effect on Jewish demography worldwide. The crucial factor is *aliyah* (Jewish migration to Israel) and its impact on the global Jewish population distribution. But, additionally, the identificational processes underlying the quality of Jewish community life had significant

effects on other key demographic variables such as marriage and fertility among Jews in Israel. The non-establishment of the State of Israel—or its establishment well after 1948—would have meant the presence after 1948 of large numbers of Jews in their preexisting environments. The overall rhythm of growth of the Jewish population after 1948 would then have been much slower than it actually was. In less developed countries, relatively high death rates would have impaired the growth of a Jewish population that, transplanted to Israel, rapidly improved its health standards and reached faster growth. In more developed countries, low fertility and frequent intermarriage—hence slow growth or stagnation—might have characterized a Jewish population that instead, moving to Israel, married endogamously and adopted higher fertility standards.¹⁴

These few examples clearly show that there is no convincing way of discerning a scenario that is a credible alternative to real history. Neither is there an obvious demographic implication to any such alternative. A simpler and likely more useful way of proceeding is to consider a small number of guided alternatives that purposely aim at establishing reasonably high or reasonably low boundaries to the possible range of Jewish population growth rates in the theoretical absence of the Shoah. Some of these possible alternatives are specified below, while additional scenarios and their implications can be calculated at ease.

Assumptions: Three Alternatives

Among the several possible assumptions for our imaginary demographic scenarios, we selected as a general rule a combination of improving health standards (not unlike those that actually occurred after World War II), and declining fertility, again in accordance with the actual reality of the recent decades in the more developed countries. Other alternatives are theoretically possible as well, such as ignoring the effects of modernization over the past fifty years, and holding the whole demographic equation fixed to its 1939 parameters. This choice would imply higher levels of both mortality and fertility, hence with mixed effects on the final result. But we feel such an alternative would make our whole exercise even more unlikely than it actually is.

Assimilation is another process that came to play an important role in Jewish demography after World War II, and it had been known to significantly influence certain Jewish communities in the Diaspora, especially in central-western Europe. Assimilation, or the loss of identification with the Jewish (or any other) group, is a complex, multivariate process. For simplicity, we shall focus here on one and possibly the main result of assimilation, namely its influence on the birth rate. More precisely, the *effectively Jewish birth rate* has been defined as that part of all births by Jewish parents that are identified—by the parents or otherwise—with the Jewish population.¹⁵ Any effects of mixed marriage or other forms of assimilation on the Jewish population will therefore be accounted by referring to *effectively Jewish fertility*

Table 3.
World Jewish Population: Estimates and Projections, 1900–2020 (Millions)

Year	Actual ^a	Projection A	Projection B	Projection C
1900	10.6			
1910	12.4			
1920	14.0			
1930	15.3			
1940	16.5	16.5	16.5	16.5
1950	11.4	18.5	18.5	17.9
1960	12.2	21.9	20.9	19.2
1970	12.6	25.2	22.8	19.8
1980	12.8	28.1	24.6	20.1
1990	12.9	31.0	25.9	20.3
2000	12.8	32.8	26.5	20.1
2010	12.8	34.0	26.5	20.1
2020	12.9	35.1	25.9	20.3

a. 1990–2020 projected according to Schmelz, *Jewish Population Projections*.

rates—as distinguished from *fertility of Jews*—as the term of reference in the subsequent projections.

In this paper a global projection will be presented, with no specific attention to regional variations and differentials. It should be recognized that the role of international migration can be significant in modifying other demographic patterns—and the case has already been mentioned here of the manifold effects of immigration on the Jewish population in Israel. However, in our global projection we shall assume the impact of international migration on Jewish fertility and mortality patterns to be nonexistent—international migration being treated as internal migration in a typical national projection.

The following projections cover the span between 1940 and 2020. Two of the population projections without Shoah effects, Models A and B (see below), as well as the projection of actual 1990 data to 2020, are performed according to the usual practice of components of change within demographic cohorts. In executing these procedures, separate projections are calculated for males and females for age-groups of five years and for periods of time of five years.¹⁶ The results of these projections include estimates of the size of Jewish population at various dates (see Table 3) and distributions of the Jewish population by age groups (see Table 2). A further projection, Model C, follows a simplified technical procedure and yields only population totals without age breakdowns. In the following the main assumptions in our projections will be specified.

Projection 1940–2020, Model A. This purportedly higher projection assumes a serious international crisis during the early 1940s—with no major negative consequences specifically aimed at the Jewish population. This involves an initial lowering of fertility at bare intergenerational replacement levels, and a subsequent fertility recovery quite similar to the one that actually took place in many Western countries

(though admittedly not in Eastern Europe) after World War II. A relatively low Jewish total fertility rate (TFR) of 2.1 is thus posited for 1940–1944; the TFR is assumed to gradually rise to a peak of 3.5 in 1955–1959; thereafter slowly and continually declining to a replacement level of 2.1 in 1985–1989; and to a minimum level of 1.7 in 1995–1999. Afterwards the TFR is supposed to remain stable. Mortality levels are assumed to improve continuously, from an average life expectancy of 61.7 years for males and 66.1 for females in 1940–1944 (similar to actual data for European Jews in the late 1930s); to 75.0 and 80.6, respectively, in 1990–1994 (similar to contemporary Jews in Israel); and to 78.7 and 84.6, respectively, in 2015–2019. It should be noted that the fertility peak level assumed for Jews in 1955–1959 is not exorbitant. It is higher than the level recorded for American Jews at the peak of the “baby boom,” and definitely higher than the actual postwar fertility rates among secular Jewish survivors in Europe, but it is lower than the actual equivalent fertility rate in Israel at the time, and definitely lower than that recorded among Jewish communities of Near Eastern origin during the same period. Moreover, the destruction of large numbers of traditional Jews prone to higher fertility during the Shoah cannot be ignored in assuming reasonable fertility levels for the postwar period.

Projection 1940–2020, Model B. This more extremely transformationist and constrained projection assumes the same initial TFR as Projection A (2.1), increases the TFR to a comparatively moderate maximum of 2.7 in 1945–1949, and afterwards assumes a continuous fertility decline to 2.1 in 1975–1979, down to a minimum of 1.3 in 2015–2019. Such a profile virtually ignores the postwar “baby boom” in many Western countries, and assumes an actual erosion in reproductive behaviors not unlike the one observed in most Diaspora countries—hence excluding the important effect that Israel has had on sustaining Jewish fertility globally. It should be stressed that the fertility assumptions in this version imply quite a stringent decline, as possibly compatible with a prolonged situation of societal stress for Jews. Mortality assumptions are the same as in Projection A.

Projection 1940–2020, Model C. This is a simpler projection aimed at establishing a lower boundary to the range of possible results. Rather than operating through age-specific rates of components of population change, it is based on aggregate, ten-year rates of population growth. Projection C, therefore, does not generate a detailed age composition for the projected Jewish population at each interval, as in Projections A and B, but only absolute Jewish population estimates. Projection C is not only methodologically weaker than Projections A and B, but its results are in fact quite unlikely. The growth rate for 1940–1950, applied to the pre-Shoah Jewish population, was interpolated from the known rates for 1930–1940 and 1950–1960. For the period 1950–1990 the actual population growth rates among world Jewry were utilized. This projection hence incorporates any postwar indirect effects of the Shoah—although the Shoah is the element to be excluded and evaluated in our exercise. The rates of global Jewish population change projected for the period 1990–2020

are extrapolated from the actual situation in 1990. This procedure results in decennial growth rates consistently declining from eight percent in 1930–1940 to 0.8 percent in 1980–1990, followed by slightly negative, zero, or slightly positive decennial rates of change in 1990–2020. This procedure creates results that initially fall between the higher growth rates that could be expected because of the actually younger age composition of pre-Shoah world Jewry and the lower growth rates that might have resulted if the State of Israel had not been established or if its establishment had been postponed. Later on, assuming that the Shoah did not take place, the projected population growth rates imply a dramatic and quite unnatural lowering of fertility because of some other reason, or a lack of improvement in health conditions and life expectancies.

It follows from the above that each of the three projections of Jewish population without the Shoah assumes or implies quite moderate if not extremely low rates of growth. Other, possibly more sanguine scenarios, will not be taken into account here. This is important in the subsequent evaluation of the findings.

Projection 1990–2020. To provide a comparative yardstick to the analysis of trends in the long run, we also present a further projection of the actually observed Jewish population estimates (inclusive of Shoah effects) for the period 1990–2020. The one reported here is a medium variant in the range of projections based on the trends prevailing during the late 1980s now being prepared at the Avraham Harman Institute of Contemporary Jewry of the Hebrew University of Jerusalem.¹⁷ It basically points to zero Jewish population growth with minor upward and downward fluctuations.

Results of the Projections: Jewish Population Size

Table 3 and Figure 1 show (a) data on actual Jewish population size, estimated for 1900 to 1990, (b) projections for 1990–2020 based on the actual 1990 estimates, and (c) three alternative projections based on the assumptions discussed above.

A first aspect to be noted is the gap between the *lowest* of the three scenarios (Projection C), on the one hand, versus the actual Jewish population data up to 1990, and the projections based on the latter after 1990, on the other hand. This gap grows from 6.5 million in 1950 to 7.4 million in 1990, and then remains rather stable throughout 2020. The gap only minimally reflects Jewish population developments that were prevented or impaired by the indirect effects of the Shoah, in addition to the more obviously direct ones. In other words, under most stringently conservative assumptions concerning Jewish population development after World War II, the loss of the six million ascertained by 1945, is compounded by 1990 to a loss of about 7.5 million, and is bound to remain stable at that level over the subsequent decades.

More significantly, and following more likely scenarios, very large gaps emerge between the higher and the lower of our three projections that assume the non-occurrence of the Shoah (Projections A and C). By 1950 the range of variation between the two projections would be about 600,000 Jews, but by 1990 it would amount

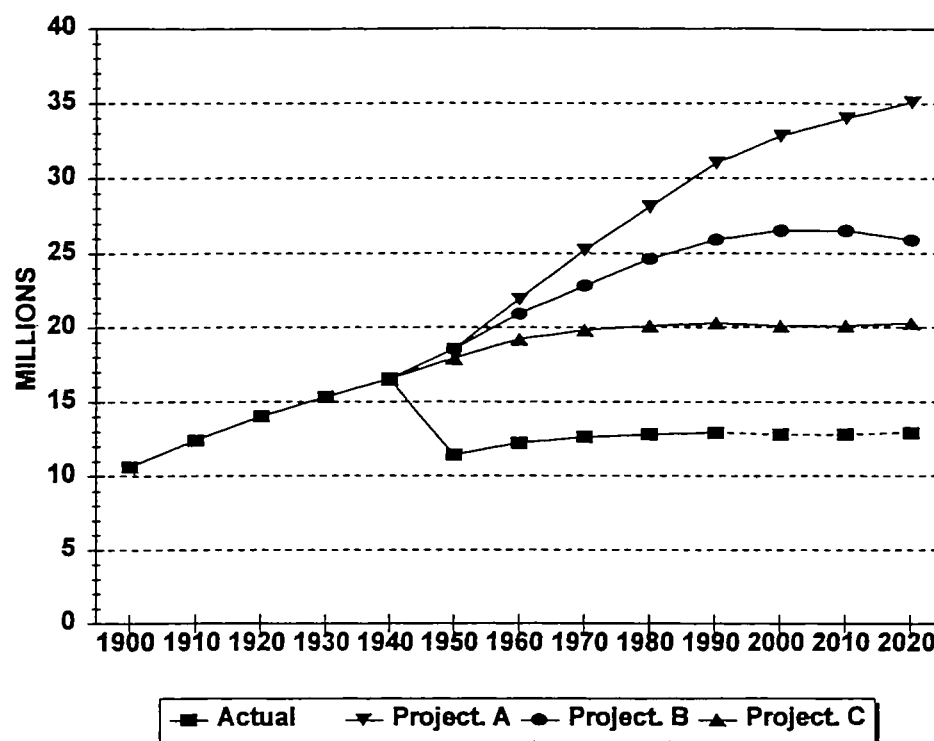


Figure 1. World Jewish Population—Estimates and Projections, 1900–1990 and 1990–2020

to 10.7 million, and by 2020, to 14.8 million. These figures indicate what may be considered a maximum estimate of the *additional* losses to the Jewish population—beyond the initial diminution by about six million—due to the indirect effects of the Shoah, and within the limits of the assumptions that were discussed above.

In absolute figures, the Jewish population of about 16.5 million on the eve of World War II was actually reduced to 11 million in 1945, and was estimated at approximately 11.4 million in 1950. It then grew to 12.6 million in 1970, and—approaching zero population growth—12.9 million in 1990. According to the projections without the Shoah, the Jewish population in 1950 might have ranged between 17.9 (Projection C) and 18.5 million (Projections A and B); in 1970 between 19.8 (Projection C) and 25.2 million (Projection A); and in 1990 between 20.3 (Projection C) and 31.0 million (Projection A).

Continuing to extrapolate the data until the year 2020, the Jewish population projection based on the real 1990 data tends to stabilize around 12.9 million. The three projections without the Shoah range between 20.3 (Projection C) and 35.1 million (Projection A) in 2020.

Age Composition

An additional important aspect unveiled by these projections concerns the evolving age structure of the Jewish population (see Table 2). The actual process of slowing

Jewish population growth importantly reflects the aging composition of the Jews worldwide after World War II—particularly in the Diaspora. In this respect the projections that ignore the effects of the Shoah point to a younger age composition, even if an aging process was conspicuously built into the assumptions underlying the same projections. A younger age composition would evidently contribute to sustaining Jewish population growth.

The age composition of the 1939 baseline portrays a Jewish population undergoing a sustained process of demographic modernization, yet still structurally influenced by the relatively high fertility of a recent past. An actual example of such a stage in demographic transition is represented in Table 2 by the Jewish population of Iran, which in 1976 structurally resembled the composite average of world Jewry in 1939. (In the meantime Iranian Jewry, as such, practically disappeared from the scene through intensive emigration.) The more recent comparative data on Jewish population reported in Table 2 point to a nearly universal process of aging, with the remarkable exception of the Jewish population in Israel, and the small extreme case of the traditional and now practically extinguished Jewish community in Ethiopia.

By 1990 Projection A produces a Jewish age distribution still characterized by a regular pyramidal shape, with the largest group composed by children below fifteen (twenty-four percent) and the smallest group formed by the elderly (twelve percent above sixty-five years of age). The projected age composition results are quite similar to that of the actual Jewish population in Israel in 1993, or in Mexico in 1991, which indeed represents a notable exception to the current rule of aging and demographic erosion in the Diaspora. By 2020, Projection A would produce a structure with an emphasis on middle-aged adults—similar to the one *recently* estimated for France, which was indeed affected by the Shoah, but also received the substantial reviving impact of large-scale immigration from North Africa in the 1950s and 1960s.

Projection B, with its very stringent assumptions of Jewish fertility reduction, would produce by 1990 a situation similar to recent Jewish population structures in countries only indirectly affected by the Shoah (through Jewish immigration), such as Argentina, Brazil, Australia, and South Africa. By 2020, with the largest age-group placed at 45–64, the results would resemble those for the *current* Jewish population in Germany, which actually represents a case of a Jewish population directly hit by the Shoah. In no case does one find such extreme instances of aging as recently displayed by the Jewish population in the former USSR, or among the small remnants of Romanian Jewry.

Overall, one may compare the different population projections with a rough estimate of the age composition of world Jewry at the beginning of the 1990s, based on summing up and weighting the available country estimates. One finds that Projection A would produce not only a much larger Jewish population but also a much younger one; by the year 2020, the still much-increased world Jewish population would have an age structure similar to the one currently prevailing in the Diaspora.

In the 1990s, Projection B would produce an age structure very close to the one actually observed, still with a much larger Jewish population.

It therefore appears that without the Shoah, Jewish population aging—and the quantitative erosion inherent in it—either would not occur, or would be postponed by about thirty years.

Conclusions

This paper, after summarizing some of the major direct and indirect sociodemographic consequences of the Shoah for the Jewish population, presents several alternative projections based on the fictional premise that the Shoah did not occur. In the process, we clearly and unequivocally outlined the conceptual and methodological limits and incertitude involved in such an exercise.

When we examine the main findings it appears that the Shoah dramatically and irreversibly changed the expected course of sociodemographic evolution of the Jewish people. The projected losses extend far beyond the common perception of the “six million.” In spite of very stringent, and even unnaturally restrictive assumptions concerning the levels of Jewish fertility and population replacement adopted in our projections, a world Jewry in the range of between twenty and thirty million would not have been inconceivable at the beginning of the 1990s. The estimate of 25.9 million according to intermediate Projection B is actually *twice the actual total of approximately thirteen million*.

Extending the projections to the first two decades of the twenty-first century, the range of plausible Jewish population sizes would further extend to an upper boundary of thirty-five million—an increase of another four million as against the expected zero population growth of recent Jewish population projections based on real data. Of course, the Shoah tragically accelerated what might have been the normally expected course of affairs.¹⁶ This holds true in at least two ways. First, as a consequence of the destruction of East European Jewry, the geographical distribution of the global Jewish population became more concentrated in the Western countries—and especially in the more developed among the latter. This is not incompatible with what could have happened if the normal process of international migration had slowly run its full course, consistent with the actual experience before World War II, and the trends among surviving Jewries afterwards.

Second, in terms of its demographic composition, and especially its age-structure, the pre-World-War II Jewish population was bound to a slow process of aging. But because of the Shoah this process was greatly accelerated. Of critical importance was the fact that young children were heavily over-represented among the total victims of the Shoah. The demographic growth momentum that was implicit in the relatively young age structure of world Jewry in 1939 was irremediably lost. The consequence was an additional massive erosion in the demographic process of generation replacement already tragically upset by mass destruction.

Obviously, no demographic exercise like the one presented in this paper will ever alter the verdict of historical events. But the marginal considerations we have suggested here should help to place the persisting impact of the Shoah on the Jewish people—and the demography of genocide in general—in appropriate historical and social scientific perspective.

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Notes

1. The effort to compile a complete nominative list and biography of the victims of the Shoah is currently being conducted by Yad Vashem in Jerusalem.
2. For example, see Liliana Picciotto Fargion, *Il libro della memoria: Gli ebrei deportati dall'Italia* (Bari: Mursia, 1991); Serge Klarsfeld, *Vichy-Auschwitz: Le rôle de Vichy dans la solution finale de la question juive en France. 1943–1944* (Paris: Fayard, 1985); Mark Kupovetsky, "Estimation of Jewish Losses in the USSR during World War II," *Jews in Eastern Europe* 2:24, (1994), pp. 25–35.
3. See early works by Jacob Lestschinsky, "Balance Sheet of Extermination," *Jewish Affairs* 1:1 (1946), pp. 3–19, and 1:12 (1946), pp. 3–22; and more recently, Wolfgang Benz (ed.) *Dimension des Völkermords* (Munich: Oldenbourg, 1991).
4. Steven T. Katz, "Mass Death and the Limits of 'Otherness,'" Paper presented at an international conference on *The 'Other' as Threat: Demonization and Antisemitism* (Jerusalem: The Hebrew University, 1995); and R. J. Rummel's paper, "The Holocaust in Comparative and Historical Perspective," presented at the same conference.
5. Uziel O. Schmelz, "The Demographic Impact of the Holocaust," in Robert S. Wistrich (ed.) *Terms of Survival: The Jewish World since 1945* (London: Routledge, 1995) pp. 44–58.
6. Hervé Le Bras, "Retour d'une population à l'état stable après une 'catastrophe,'" *Population* 24:5 (1969); Massimo Livi Bacci, *La società italiana davanti alle crisi di mortalità* (Firenze: Università degli Studi, Dipartimento Statistico, 1978).
7. Uziel O. Schmelz, and Sergio DellaPergola, "World Jewish Population 1992," *American Jewish Year Book* 94 (1994), pp. 465–489.
8. See Klarsfeld, *Vichy-Auschwitz*.
9. See DellaPergola, "Appunti sulla demografia della persecuzione antiebraica in Italia," *La Rassegna Mensile di Israel* 47:1–3, (1981), pp. 121–137.

10. Doris Bensimon and Sergio DellaPergola, *La population juive de France: sociodémographie et identité* (Jerusalem and Paris: Université Hébraïque and CNRS, 1984).
11. Sergio DellaPergola, "Major Demographic Trends of World Jewry: The Last Hundred Years," in B. Bonn -Tamir and A. Adam (eds.) *Genetic Diversity Among Jews: Diseases and Markers at the DNA Level* (New York: Oxford University Press, 1992), pp. 3–30.
12. See L on Poliakov, *The Aryan Myth: A History of Racist and Nationalist Ideas in Europe* (New York: Basic Books, 1974), particularly his references to Jean-Christian Boudin, *Traitt  de g ographie et de statistique m dicales* (Paris, 1856).
13. For additional information on the data see DellaPergola, "Major Demographic Trends."
14. See Uziel O. Schmelz, Sergio DellaPergola, and Uri Avner *Ethnic Differences Among Israeli Jews: A New Look* (Jerusalem: The Hebrew University, 1991).
15. See Schmelz and DellaPergola, "World Jewish Population."
16. See Richard Leete, *People Version 2.0, User's Manual* (Kuala Lumpur: Government of the United Kingdom, Overseas Development Administration, and Government of Malaysia, Economic Planning Unit, 1990).
17. Uziel O. Schmelz, "Jewish Population Projections, 1990–2020," Paper presented at the World Congress of Jewish Studies (Jerusalem: The Hebrew University, 1993).
18. Sergio DellaPergola, "Changing Cores and Peripheries: Fifty Years in Socio-demographic Perspective," in Robert S. Wistrich (ed.) *Terms of Survival*, pp. 13–43.